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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,247	12/11/2001	Kent K. Leung	CISCP243/4258	6305

22434 7590 12/14/2005  
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EXAMINER
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CERVONE, MICHAEL ANTHONY

ART UNIT	PAPER NUMBER
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2131

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/015,247	LEUNG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Michael A. Cervone	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-82 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-82 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Attached</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's traversal of arguments for restriction, filed 11/3/05, has been fully considered and found persuasive. The restriction has been withdrawn. Claims 1-82 have been examined and are pending.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 6 recites the limitation "the first key and they second key". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 1, 3-4, 26-27, 34, 42, 44, 46, 52, 64-65, 67-72, 76-82 are rejected under 35 U.S.C. 102(e) as being anticipated by Bhagwat et al. (US Patent Number 6,651,105).

6. As per claim 1, Bhagwat is directed to a method of registering a Mobile Node in a Mobility Agent supporting Mobile IP comprising:

- a. Receiving a registration request packet (PHP connection request packet) from the mobile node, indicating that a key to be shared by the mobile node and an agent with which the mobile node is registering is requested. [See Col. 7 lines 60-63]
- b. Obtaining a key (random secret key) to be shared by the mobile node and the agent with which the mobile node is registering. [See Col. 8 lines 24-28]
- c. Storing the key to be shared by the mobile node and the agent with which the mobile node is registering. [See Col. 8 lines 24-31 and lines 43-46]
- d. Sending a registration reply packet (SES\_RPL) to the mobile node including the key (random secret key) to be shared by the mobile node and the agent with which the mobile node is registering. [See Col. 8 lines 24-31]

7. Claims 67-69 are "system", "computer-readable medium", and "apparatus" claims analogous to "method" claim 1. Claims 67-69 are rejected based on the same rationale as the rejection of claim 1.

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8. As per claim 3, Bhagwat is applied as stated in the rejection of claim 1. Bhagwat further teaches that obtaining a key to be shared by the mobile node and the agent with which the mobile node is registering comprises:

- a. Composing a request packet (SES\_REQ) including authentication information associated with the mobile node (IEEE MAC address) and key (secret key) request indicating that a key to be shared by the mobile node and the agent with which the mobile node is registering is requested. [See Col. 8 lines 19-22]
- b. Sending the request packet (SES-REQ) to a network device adapted for authenticating the mobile node. [See Col. 8 lines 19-21]
- c. Receiving a reply packet (SES\_RPL) from the network device in response to the key request, the reply packet (SES\_RPL) including a key (secret key) to be shared by the mobile node and the agent with which the mobile node is registering. [See Col. 8 lines 24-28]

9. As per claim 4, Bhagwat is applied as stated in the rejection of claim 3. Bhagwat further teaches that the network device (backend server) is on a home network associated with the mobile node and the mobility agent (access point) is on a foreign network to which the mobile node has roamed. [See Col. 4 line 66 - Col. 5 line 9]

10. As per claim 26, Bhagwat is directed to a method of registering a mobile node with an agent supporting mobile IP, comprising:

- a. Composing a registration request (SES\_REQ) having a key request extension requesting a key to be shared by the mobile node and the agent with which the mobile node is registering. [See Col. 8 lines 19-28].
- b. Sending the registration request to a mobility agent supporting mobile IP. [See Col. 8 lines 19-28].
- c. Receiving a registration reply (SES\_RPL) from the mobility agent, the registration reply indicating that the mobile node needs to re-register with the agent with which the mobile node is registering and having a key reply extension including the key to be shared by the mobile node and the agent with which the mobile node is registering. [See Col. 8 lines 19-28 as well as Col. 9 lines 20-42]].
- d. Obtaining the key to be shared by the mobile node and the agent with which the mobile node is registering from the key reply extension of the registration reply. [See Col. 8 lines 27-28].
- e. Storing the key to be shared by the mobile node and the agent with which the mobile node is registering, thereby enabling the mobile node to subsequently register directly with the agent. [See Col. 8 lines 19-28 and 43-46].

11. Claims 70-72 are “system”, “computer-readable medium”, and “apparatus” claims analogous to “method” claim 26. Claims 70-72 are rejected based on the same rationale as the rejection of claim 26.

12. As per claim 27, Bhagwat is applied as stated in the rejection of claim 26. Bhagwat further teaches that the agent with which the mobile node is registering is the mobility agent. [See Col. 8 line 1-18].

13. As per claim 34, Bhagwat is applied as stated in the rejection of claim 26. Bhagwat further teaches that the registration reply further comprises an authentication extension comprising:

- a. Authenticating the registration reply using the authentication extension (IEEE MAC address) and the key to be shared by the mobile node and the agent with which the mobile node is registering, thereby verifying that the mobile node and the agent with which the mobile node is registering both share the key to be shared by the mobile node and the agent with which the mobile node is registering [See Col. 9 lines 20-49].

14. As per claim 42, Bhagwat is directed to a method of authenticating a registration request (PHP connection request packet) associated with a mobile node in a network device for performing authentication of a mobile node comprising

- b. Receiving a request packet (SES\_REQ) including authentication information associated with the mobile node (IEEE MAC address) and indicating that a home agent is to be assigned to the mobile node. [See Col. 8 lines 19-25].
- c. Authenticating the mobile node using the authentication information [See Col. 8 lines 24-37].

- d. Assigning a home agent to the mobile node, the home agent being located on a foreign network that the mobile node is visiting. [See Col. 8 lines 24-34]
- e. Sending a reply packet (SES\_RPL) identifying the home agent assigned to the mobile node. [See Col. 8 lines 24-34]

15. Claim 76 is a “system” claim analogous to “method” claim 42. Claim 76 is rejected based on the same rationale as the rejection of claim 42.

16. As per claim 44, Bhagwat is directed to method of registering a mobile node in a mobility agent supporting mobile IP comprising:

- f. Receiving a registration request packet (PHP connection request packet) from the mobile node, indicating that a home agent (backend server) with which the mobile node is to register is to be assigned to the mobile node. [See Col. 7 lines 60-63].
- g. Obtaining a home agent assignment, the home agent assignment identifying the home agent with which the mobile node is to register. [See Col. 8 lines 1-18]
- h. Sending a registration reply packet to the mobile node identifying the home agent with which the mobile node is to register. [See Col. 8 lines 24-37]

17. Claims 77-79 are “system”, “computer-readable medium”, and “apparatus” claims analogous to “method” claim 44. Claims 77-79 are rejected based on the same rationale as the rejection of claim 44.



18. As per claim 46, Bhagwat is applied as stated in the rejection of claim 44. Bhagwat further teaches that wherein obtaining a home agent assignment comprises:

- i. Composing a request packet (SES\_REQ) including authentication information associated with the mobile node (IEEE MAC address) and indicating that a home agent with which the mobile node is registering is to be assigned to the mobile node. [See Col. 8 lines 19-22]
- j. Sending the request packet (SES\_REQ) to a network device adapted for authenticating the mobile node. [See Col. 8 lines 19-21]
- k. Receiving a reply packet (SES\_RPL) from the network device, the reply packet (SES\_RPL) identifying the home agent with which the mobile node is registering. [See Col. 8 lines 24-28]

19. As per claim 52, Bhagwat is applied as stated in the rejection of claim 44. Bhagwat further teaches that the registration reply packet (SES\_RPL) further includes a key to be shared by the mobile node and the home agent with which the mobile node is registering. [See Col. 8 lines 24-28]

20. As per claim 64, Bhagwat is directed to a method of registering a mobile node in a mobility agent supporting mobile IP, comprising:

- l. Receiving a registration request packet (SES\_REQ), the registration request packet having an extension including a key to be shared by the mobility agent

and the mobile node, the mobility agent being a home agent on a foreign network to which the mobile node has roamed. [See Col. 9 lines 14-29]

m. Obtaining the key from the extension of the registration request packet. [See Col. 9 lines 14-29]

n. Storing the key, thereby enabling the mobile node to subsequently register directly with the mobility agent. [See Col. 9 lines 25-34]

o. Authenticating the registration request packet using the key. [See Col. 9 lines 25-34]

p. Sending a registration reply (SES\_RPL) packet to the mobile node. [See Col. 9 lines 25-34]

21. Claims 80-82 are "system", "computer-readable medium", and "apparatus" claims analogous to "method" claim 64. Claims 80-82 are rejected based on the same rationale as the rejection of claim 64.

22. As per claim 65, Bhagwat is applied as stated in the rejection of claim 64. Bhagwat further teaches decrypting the key. [See Col. 8 lines 19-46]

23. Claims 37-38, 41, and 73-75 are rejected under 35 U.S.C. 102(e) as being anticipated by Chowdhury (US Patent Application Number 2002/0114323).

24. As per claim 37, Chowdhury is directed to a method of registering a mobile node with an agent supporting mobile IP comprising

- i. Composing a first registration request (RADIUS ACCESS REQUEST message) that requests that a home agent be dynamically assigned to the mobile node. [See 0036]
- ii. Sending the first registration request (RADIUS ACCESS REQUEST message) to a mobility agent supporting mobile IP. [See 0036]
- iii. Receiving a registration reply (RADIUS ACCESS ACCEPT message) from the mobility agent, the registration reply identifying a home agent that has been assigned to the mobile node. [See 0037]

25. Claims 73-75 are “system”, “computer-readable medium”, and “apparatus” claims analogous to “method” claim 37. Claims 73-75 are rejected based on the same rationale as the rejection of claim 37.

26. As per claim 38, Chowdhury is applied as stated in the rejection of claim 37. Chowdhury further teaches sending a second registration request (re-registration) to the home agent that has been assigned to the mobile node. [See 0035]

27. As per claim 41, Chowdhury is applied as stated in the rejection of claim 37. Chowdhury further teaches that the registration request further indicates that a key to be shared by the mobile node and the home agent be generated. [See 0034]

***Claim Rejections - 35 USC § 103***

28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

29. Claims 2, 7-11, 17, 28-31, 35, 45, 49-51, 58 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhagwat et al. (US Patent Number 6,651,105) in view of Rai et al. (US Patent Number 6,421,714).

30. As per claims 2 and 45, Bhagwat is applied as stated in the rejection of claims 1 and 44, respectively. Bhagwat fails to teach the creation of a registration entry for the mobile node in a mobility binding table. Rai is directed to a Mobility management scheme which teaches creating a registration entry for the mobile node in a mobility binding table. [See Col. 38 lines 11-26 and Tables 1-3]. Bhagwat and Rai are analogous art because they are both directed to methods for communications between wireless devices. A mobility binding table is known in the art to store the registration information. It is obvious to one skilled in the art to use the mobility binding table as described by Rai in order to keep track of the bindings between the access points and mobile devices of Bhagwat.

31. As per claims 7 and 49, Bhagwat is applied as stated in the rejection of claims 1 and 44, respectively. Bhagwat fails to teach that the mobility agent is adapted for functioning as both a home and foreign agent. Rai is directed to a Mobility management scheme which teaches that the mobility agent is adapted for functioning as a foreign agent and a home agent, and further comprising:

- a. Sending an agent advertisement indicating that the mobility agent is configured for functioning as a home agent and a foreign agent. [See Col. 37 lines 35-43].

Bhagwat and Rai are analogous art because they are both directed to methods for communications between wireless devices. Agent advertisements delivered to mobile devices located in the vicinity of the agent are well known in the art. It is obvious to one skilled in the art to use the agent advertisements as described by Rai in order to send advertisements from access points to mobile nodes to inform them when they are in range of a home or foreign agent.

32. As per claims 8 and 50, Bhagwat and Rai are applied as stated in the rejection of claim 7 and 49, respectively. Rai further teaches that the agent advertisement further indicates an authentication domain (care-of-address) associated with the mobility agent. [See Col. 18 lines 19-64].

33. As per claim 9, Bhagwat and Rai are applied as stated in the rejection of claim 7. Rai further teaches that the agent advertisement further indicates that the mobile node

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should obtain an IP address (care-of-address) from a DHCP server (foreign agent).

[See Col. 18 lines 19-64].

34. As per claim 10, Bhagwat and Rai are applied as stated in the rejection of claim 7.

Rai further teaches that the agent advertisement further indicates that the mobile node should obtain an IP address (care-of-address) from the agent (foreign agent) with which the mobile node is registering. [See Col. 18 lines 19-64].

35. As per claims 11 and 51, Bhagwat and Rai are applied as stated in the rejection of claims 7 and 49, respectively. Rai further teaches that the agent advertisement further indicates that the mobile node should obtain an IP address (care-of-address) via the mobility agent (foreign agent). [See Col. 18 lines 19-64].

36. As per claims 17, 35 and 58, Bhagwat is applied as stated in the rejection of claims 1, 26 and 44, respectively. Bhagwat fails to teach the agent with which the mobile node is registering is a home agent on a network to which the mobile node has roamed. Rai is directed to a Mobility management scheme which teaches the agent with which the mobile node is registering is a home agent on a network to which the mobile node has roamed. [See Col. 37 lines 35-43]. Bhagwat and Rai are analogous art because they are both directed to methods for communications between wireless devices. Agents acting as home agents to its home mobile nodes and foreign agents to foreign mobile

nodes is well known in the art. It is obvious to one skilled in the art to combine the registration abilities of Rai with the registration processes of Bhagwat.

37. As per claim 28, Bhagwat is applied as stated in the rejection of claim 26. Bhagwat fails to teach receiving an agent advertisement indicating an authentication domain associated with the mobility agent, determining whether the authentication domain associated with the mobility agent is different from that of the mobile node, wherein composing a registration request having a key request extension is performed when is determined that the authentication domain associated with the mobility agent is different from that of the mobile node. Rai is directed to a Mobility management scheme which teaches:

- b. Receiving an agent advertisement indicating an authentication domain (care-of-address) associated with the mobility agent. [See Col. 18 lines 19-64].
- c. Determining whether the authentication domain associated with the mobility agent is different from that of the mobile node. [See Col. 16 line 66 – Col. 17 line 22]
- d. Wherein composing a registration request having a key request extension is performed when is determined that the authentication domain associated with the mobility agent is different from that of the mobile node. [See Col. 16 line 66 – Col. 17 line 22]

Bhagwat and Rai are analogous art because they are both directed to methods for communications between wireless devices. Agent advertisements delivered to mobile

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devices located in the vicinity of the agent are well known in the art. It is obvious to one skilled in the art to use the agent advertisements as described by Rai in order to send advertisements from access points to mobile nodes to inform them when they are in range of a home or foreign agent.

38. As per claim 29, Bhagwat and Rai are applied as stated in the rejection of claim 28. Rai teaches that the agent advertising further indicates that the mobile node should obtain an IP address (care-of-address) from a DHCP server (foreign agent), further comprising obtaining an IP address from a DHCP server. [See Col. 18 lines 19-64].

39. As per claim 30, Bhagwat and Rai are applied as stated in the rejection of claim 28. Rai further teaches that the agent advertisement further indicates that the mobile node should obtain an IP address (care-of-address) from the mobility agent (foreign agent), further comprising obtaining an IP address from the mobility agent. [See Col. 18 lines 19-64].

40. As per claim 31, Bhagwat is applied as stated in the rejection of claim 26. Bhagwat fails to teach that the mobility agent is adapted for functioning as both a home and foreign agent. Rai is directed to a Mobility management scheme which teaches that the mobility agent is adapted for functioning as a foreign agent and a home agent, and further comprising:



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- e. Receiving an agent advertisement from the mobility agent indicating that the mobility agent is configured for functioning as a home agent and a foreign agent. [See Col. 37 lines 35-43].

Bhagwat and Rai are analogous art because they are both directed to methods for communications between wireless devices. Agent advertisements delivered to mobile devices located in the vicinity of the agent are well known in the art. It is obvious to one skilled in the art to use the agent advertisements as described by Rai in order to send advertisements from access points to mobile nodes to inform them when they are in range of a home or foreign agent.

41. As per claim 66, Bhagwat is applied as stated in the rejection of claim 64. Bhagwat fails to teach that the registration packet indicates an IP address is requested. Rai is directed to a Mobility management scheme which teaches that the registration request packet indicates that an IP address is requested, comprising:

- f. Assigning an IP address to the Mobile Node. [See Col. 9 line 61 – Col. 10 line 14]
- g. Wherein the registration reply packet includes the assigned IP address. [See Col. 9 line 61 – Col. 10 line 14]

Bhagwat and Rai are analogous art because they are both directed to methods for communications between wireless devices. Including and IP address in the reply packet is well known in the art. It is obvious to include the IP address of Rai in the

method of receiving a reply of Bhagwat in order to identify which agent the node is registered with and to keep track of the node.

42. Claims 5, 12, 18-25, 43, 47-48, 53, and 59-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhagwat et al. (US Patent Number 6,651,105) in view of Chowdhury et al. (US Patent Application Number 2002/0114323).

43. As per claim 5, Bhagwat is applied as stated in the rejection of claim 3. Bhagwat fails to teach the AAA server and the usage of a RADIUS access request packet.

Chowdhury is directed to a method for dynamically assigning a home agent that teaches that the network device is a AAA server, wherein the request packet including the authentication information and the key request is a RADIUS access request packet, the RADIUS access request packet including an authentication attribute having the authentication information and a key request attribute having the key request. [See 0020 and 0034]. It is obvious to one skilled in the art to use an AAA server as well as a RADIUS access request packet as described by Chowdhury in assigning a home agent as described by Bhagwat. The usage of the AAA server and the RADIUS protocol would increase the security capabilities of Bhagwat's system.

44. As per claims 12 and 53, Bhagwat is applied as stated in the rejection of claims 1 and 52, respectively. Bhagwat fails to teach that the registration reply packet indicates that the mobile node needs to re-register. Chowdhury is directed to a method for

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dynamically assigning a home agent that teaches that the registration reply packet indicates that the mobile node needs to re-register with the agent with the key to be shared by the mobile node and the agent with which the mobile node is registering. [See 0034-0035]. It is obvious to one skilled in the art to use dynamic assignment as described by Chowdhury in assigning a home agent as described by Bhagwat. Static assignment of home agents can result in an inefficient use of resources and a possible degradation in services provided to the mobile users, the usage of dynamic assignment can solve these issues [See 0002-0003].

45. As per claim 18 and 36, Bhagwat is applied as stated in the rejection of claims 1 and 26, respectively. Bhagwat fails to teach the agent with which the mobile node is registering is a home agent to be dynamically assigned to the mobile node. Chowdhury is directed to a method for dynamically assigning a home agent that teaches the agent with which the mobile node is registering is a home agent to be dynamically assigned to the mobile node [See 0005]. Bhagwat and Chowdhury are analogous art because they are both directed to methods for communications between wireless devices. It is obvious to one skilled in the art to use dynamic assignment as described by Chowdhury in assigning a home agent as described by Bhagwat. Static assignment of home agents can result in an inefficient use of resources and a possible degradation in services provided to the mobile users, the usage of dynamic assignment can solve these issues [See 0002-0003].

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46. As per claim 19, Bhagwat is applied as stated in the rejection of claim 1. Bhagwat fails to teach that the registration request packet indicates that the agent with which the mobile node is registering is a home agent to be dynamically assigned to the mobile node and the registration reply packet identifies that agent with which the mobile node is registering. Chowdhury is directed to a method for dynamically assigning a home agent that teaches that registration request packet indicates that the agent with which the mobile node is registering is a home agent to be dynamically assigned to the mobile node [See 0036] and the registration reply packet (RADIUS ACCESS ACCEPT message) identifies that agent with which the mobile node is registering [See 0037]. Bhagwat and Chowdhury are analogous art because they are both directed to methods for communications between wireless devices. It is obvious to one skilled in the art to use dynamic assignment as described by Chowdhury in assigning a home agent as described by Bhagwat. Static assignment of home agents can result in an inefficient use of resources and a possible degradation in services provided to the mobile users, the usage of dynamic assignment can solve these issues [See 0002-0003].

47. As per claim 20, Bhagwat and Chowdhury are applied as stated in the rejection of claims 19. Chowdhury further teaches the registration reply packet (RADIUS ACCESS REQUEST message) further indicates that the agent is to be used by the mobile node in subsequent registration requests (re-registration requests) [See 0035].

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48. As per claim 21, Bhagwat and Chowdhury are applied as stated in the rejection of claim 19. Chowdhury further teaches the registration reply packet (RADIUS ACCESS REQUEST message) indicates that the mobile node is to obtain the agent from the registration reply packet (RADIUS ACCESS REQUEST message) [See 0036-0037].

49. As per claim 22, Bhagwat and Chowdhury are applied as stated in the rejection of claim 19. Chowdhury further teaches the agent is a home agent on a network to which the mobile node has roamed [See 0032].

50. As per claim 23, Bhagwat and Chowdhury are applied as stated in the rejection of claim 19. Chowdhury further teaches that the registration reply packet indicates that the mobile node needs to re-register with the agent with the key [See 0034-0035].

51. As per claim 24, Bhagwat and Chowdhury are applied as stated in the rejection of claim 23. Bhagwat further teaches:

- h. Receiving a second registration request (new access point registration) from the mobile node, the second registration request being addressed to the agent (access point) with which the mobile node is registering. [See Col. 8 line 65- Col. 9 line 2]
- i. Appending a key reply extension to the second registration request, the key reply extension including the key. [See Col. 9 lines 2-5]

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- j. Forwarding the second registration request to the agent with which the mobile node is registering. [See Col. 9 lines 14-19]

52. As per claim 25, Bhagwat and Chowdhury are applied as stated in the rejection of claim 24. Bhagwat further teaches:

- k. Receiving a second registration reply (SES\_CLR) from the agent with which the mobile node is registering. [See Col. 9 lines 60-65 and Col. 10 lines 2-6]
- l. Removing the key to be shared by the mobile node and the agent with which the mobile node is registering from storage. [See Col. 10 lines 8-11]
- m. Forwarding the second registration reply to the mobile node. [See Col. 10 lines 8-13]

53. As per claim 43, Bhagwat is applied as stated in the rejection of claim 42. Bhagwat fails to teach the AAA server and the usage of a RADIUS access request packet. Chowdhury is directed to a method for dynamically assigning a home agent that teaches that the network device is an AAA server, wherein the request packet is a RADIUS access request packet and wherein the reply packet is a RADIUS access reply packet [See 0020]. It is obvious to one skilled in the art to use an AAA server as well as a RADIUS access request packet as described by Chowdhury in assigning a home agent as described by Bhagwat. The usage of the AAA server and the RADIUS protocol would increase the security capabilities of Bhagwat's system.

54. As per claim 47, Bhagwat is applied as stated in the rejection of claim 46. Bhagwat fails to teach the AAA server and the usage of a RADIUS access request packet. Chowdhury is directed to a method for dynamically assigning a home agent that teaches that the network device is an AAA server, wherein the request packet is a RADIUS access request packet, the RADIUS access request packet including an authentication attribute having the authentication information and an attribute indicating that a home agent is to be assigned to the mobile node [See 0020 and 0034]. It is obvious to one skilled in the art to use an AAA server as well as a RADIUS access request packet as described by Chowdhury in assigning a home agent as described by Bhagwat. The usage of the AAA server and the RADIUS protocol would increase the security capabilities of Bhagwat's system.

55. As per claim 48, Bhagwat is applied as stated in the rejection of claim 46. Bhagwat fails to teach the AAA server and the usage of a RADIUS access request packet. Chowdhury is directed to a method for dynamically assigning a home agent that teaches that the network device is an AAA server, wherein the reply packet is a RADIUS access accept packet, the RADIUS access accept packet identifying the home agent [See 0020 and 0034]. It is obvious to one skilled in the art to use an AAA server as well as a RADIUS access request packet as described by Chowdhury in assigning a home agent as described by Bhagwat. The usage of the AAA server and the RADIUS protocol would increase the security capabilities of Bhagwat's system.

56. As per claim 59, Bhagwat is applied as stated in the rejection of claim 44. Bhagwat fails to teach that the registration reply packet further indicates that the home agent is to be used by the mobile node in subsequent registration requests. Chowdhury is directed to a method for dynamically assigning a home agent that teaches the registration reply packet (RADIUS ACCESS REQUEST message) further indicates that the home agent is to be used by the mobile node in subsequent registration requests (re-registration requests) [See 0035]. Bhagwat and Chowdhury are analogous art because they are both directed to methods for communications between wireless devices. It is obvious to one skilled in the art to use the re-registration request as described by Chowdhury in the assignment of a home agent as described by Bhagwat. It is known in the art to re-register a node should the connection fail or the key expire.

57. As per claim 60, Bhagwat is applied as stated in the rejection of claim 44. Bhagwat fails to teach that the registration reply packet indicates that the mobile node is to identify the home agent from the registration reply packet. Chowdhury is directed to a method for dynamically assigning a home agent that teaches the registration reply packet (RADIUS ACCESS REQUEST message) indicates that the mobile node is to identify the home agent from the registration reply packet (RADIUS ACCESS REQUEST message) [See 0036-0037]. Bhagwat and Chowdhury are analogous art because they are both directed to methods for communications between wireless devices. It is obvious to one skilled in the art to use the re-registration request as



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described by Chowdhury in the assignment of a home agent as described by Bhagwat. It is known in the art to re-register a node should the connection fail or the key expire.

58. As per claim 61, Bhagwat is applied as stated in the rejection of claim 52. Bhagwat fails to teach re-registration. Chowdhury is directed to a method for dynamically assigning a home agent that teaches that the registration reply packet indicates that the mobile node needs to re-register with the home agent with the key [See 0034-0035]. Bhagwat and Chowdhury are analogous art because they are both directed to methods for communications between wireless devices. It is obvious to one skilled in the art to use the re-registration request as described by Chowdhury in the assignment of a home agent as described by Bhagwat. It is known in the art to re-register a node should the connection fail or the key expire.

59. As per claim 62, Bhagwat and Chowdhury are applied as stated in the rejection of claim 61. Bhagwat further teaches:

- n. Receiving a second registration request (new access point registration) from the mobile node, the second registration request being addressed to the agent (access point) with which the mobile node is registering. [See Col. 8 line 65 – Col. 9 line 2]
- o. Appending a key reply extension to the second registration request, the key reply extension including the key. [See Col. 9 lines 2-5]

- p. Forwarding the second registration request to the agent with which the mobile node is registering. [See Col. 9 lines 14-19]

60. As per claim 63, Bhagwat and Chowdhury are applied as stated in the rejection of claim 62. Bhagwat further teaches:

- q. Receiving a second registration reply (SES\_CLR) from the home agent with which the mobile node is registering. [See Col. 9 lines 60-65 and Col. 10 lines 2-6]
- r. Removing the key to be shared by the mobile node and the home agent with which the mobile node is registering from storage. [See Col. 10 lines 8-11]
- s. Forwarding the second registration reply to the mobile node. [See Col. 10 lines 8-13]

61. Claims 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chowdhury et al. (US Patent Application Number 2002/0114323) in view of Bhagwat et al. (US Patent Number 6,651,105).

62. As per claim 39, Chowdhury is applied as stated in the rejection of claim 37.

Chowdhury fails to teach that the registration reply further identifies a key to be shared by the mobile node and the home agent that has been assigned to the mobile node, thereby enabling the mobile node to subsequently register directly with the home agent that has been assigned to the mobile node. Bhagwat is directed to a method for

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communications of mobile devices that teaches that the registration reply (SES\_RPL) further identifies a key to be shared by the mobile node and the home agent that has been assigned to the mobile node, thereby enabling the mobile node to subsequently register directly with the home agent that has been assigned to the mobile node [See Col. 8 lines 24-28]. Bhagwat and Chowdhury are analogous art because they are both directed to methods for communications between wireless devices. It is obvious to one skilled in the art to use the method of using a key in the reply as described by Bhagwat in the assignment of a home agent as described by Chowdhury. It is well known in the art to use a key in order to validate the communication [See Chowdhury 0034].

63. As per claim 40, Bhagwat and Chowdhury are applied as stated in the rejection of claim 39. Bhagwat further teaches:

- t. Obtaining the key to be shared by the mobile node and the home agent that has been assigned to the mobile node from the registration reply. [See Col. 8 lines 19-28]
- u. Composing a second registration request (new access point registration) including the key to be shared by the mobile node and the home agent that has been assigned to the mobile node. [See Col. 8 line 65 – Col. 9 line 5]
- v. Sending the second registration request to the home agent that has been assigned to the mobile node. [See Col. 8 line 65 – Col. 9 line 13]

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64. Claims 6, 13-16, 32-33 and 54-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhagwat et al. (US Patent Number 6,651,105) in view of Faccin et al. (US Patent Application Number 2002/0114469).

65. As per claim 6, Bhagwat is applied as stated in the rejection of claim 3. Bhagwat fails to teach that the network device is an AAA server, wherein the reply packet is a RADIUS access accept packet, the RADIUS access accept packet including the first key and the second key. Faccin is directed to a method for delegating security procedures on a visited domain in which the network device is an AAA server, wherein the reply packet is a RADIUS access accept packet, the RADIUS access accept packet including the first key and the second key. [See 0009]. Bhagwat and Faccin are analogous art because they are both directed to methods for communications in a mobile IP environment. It is obvious to one skilled in the art to use the method of using a key in the reply as described by Faccin in the assignment of a home agent as described by Bhagwat. The usage of the two keys will allow a mobile node and a visited network to perform authentication and key distribution without requiring many round trip communications.

66. As per claims 13 and 54, Bhagwat is applied as stated in the rejection of claims 3 and 52, respectively. Bhagwat fails to teach that the reply packet including a first key to be provided to the agent with which the mobile node is registering and a second key to be provided to the mobile node, wherein the first key and the second key are each the

key to be shared by the mobile node and the agent with which the mobile node is registering. Faccin is directed to a method for delegating security procedures on a visited domain which teaches that the reply packet including a first key (long term key) to be provided to the agent with which the mobile node is registering and a second key (temporary shared key) to be provided to the mobile node, wherein the first key and the second key are each the key to be shared by the mobile node and the agent with which the mobile node is registering [See 0038 and 0041]. Bhagwat and Faccin are analogous art because they are both directed to methods for communications in a mobile IP environment. It is obvious to one skilled in the art to use the method of using a key in the reply as described by Faccin in the assignment of a home agent as described by Bhagwat. The usage of the two keys will allow a mobile node and a visited network to perform authentication and key distribution without requiring many round trip communications.

67. As per claims 14 and 55, Bhagwat and Faccin are applied as stating in the rejection of claims 13 and 54, respectively. Faccin further teaches:

- w. Obtaining the second key to be provided to the mobile node from the reply packet [See 0041].
- x. Composing the registration reply packet, the registration reply packet comprising the second key to be provided to the mobile node [See 0041].

68. As per claims 15 and 56, Bhagwat and Faccin are applied as stated in the rejection of claims 14 and 55, respectively. Faccin further teaches that the registration reply packet further comprises a hash of the registration reply packet using the first key to be provide to the agent, the hash of the registration reply packet being provided in a first extension to the registration reply packet and the second key being provided in a second extension to the registration reply packet [See 0032-0033].

69. As per claims 16 and 57, Bhagwat and Faccin are applied as stated in the rejection of claims 13 and 54, respectively. Faccin further teaches the agent is a mobility agent further comprising decrypting and storing the first key to be provided to the agent [See 0032-0033 and 0050-0051].

70. As per claim 32, Bhagwat is applied as stated in the rejection of claim 26. Bhagwat fails to teach further teaches sending a subsequent registration request to the agent including a value (random number) associated with the key to be shared by the mobile node and the agent with which the mobile node is registering. Faccin is directed to a method for delegating security procedures on a visited domain which teaches sending a subsequent registration request to the agent including a value (random number) associated with the key to be shared by the mobile node and the agent with which the mobile node is registering [See 0041]. Bhagwat and Faccin are analogous art because they are both directed to methods for communications in a mobile IP environment. It is obvious to one skilled in the art to use the method of using a key in the reply as

described by Faccin in the assignment of a home agent as described by Bhagwat. The usage of the two keys will allow a mobile node and a visited network to perform authentication and key distribution without requiring many round trip communications.

71. As per claim 33, Bhagwat and Faccin are applied as stated in the rejection of claim 32. Faccin further teaches that the subsequent registration request comprises an authentication extension including a hash value (MD5) of the key to be shared by the mobile node and the agent with which the mobile node is registering [See 0014 and 0032].

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Cervone whose telephone number is 571-272-3712. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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